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Current State of U.S. Manufacturing

- 2.5 million jobs lost in last 3 years
- Machine tool consumption down 2/3 in past 5 years



How much U.S. manufacturing will be done in 100 Years?



Current State of U.S. Manufacturing

- 1/3 of all manufactured products consumed in the U.S. are imported
- Trade deficit is more than \$500 Billion – over 5% of GNP



BY JAMES C. COOPER & KATHLEEN MADIGAN

A Silver Lining's Menacing Cloud

Higher demand will lead to a rising trade deficit—even with a lower dollar

U.S. ECONOMY "Think globally." That has been a key business mantra over the past decade. However, globalization offers both opportunities and challenges. And in the coming year, ever-increasing competition from attractively priced imports will continue to force many U.S. companies to rethink their production strategies, their use of labor, and even their product lines. The imperative to boost productivity will remain great.

Intense import competition and the strategies businesses are adopting to deal with it are some of the unique features of this business cycle. For consumers, the increased presence of cheap imports means payback on credit cards. And low inflation has enabled the Federal Reserve to keep interest rates low, making borrowing and mortgage refinancing a breeze. But for businesses, foreign competition means pricing power. Facing competition to improve efficiency and cut costs.

Foreign trade seemed less of a problem in August when the trade gap narrowed. But the deficit will widen again soon. Driven by U.S. consumers and businesses is accelerating, and about 30% of every dollar spent in the U.S. is now spent on foreign-made products. And businesses must now adjust production, which will bring in even more foreign goods.

Then, export goods will pick up in coming quarters, but the overall trade outlook is one of simple arithmetic. The trade deficit in the value of exports minus imports, and the volume of U.S. imports of goods and services is 30% greater than that of exports. If exports, adjusted for inflation, grow 30% in the coming year, as most economists predict, imports will grow 39%.

Since its recent peak in February 2002, the dollar has fallen 9% on a trade-weighted basis. But import prices, excluding oil, are only beginning to show any relief. The gain over the past year has been a mere 0.8%. Prices of imported consumer goods are still down 0.2%, and prices of capital goods are off by 1.3%.

The problem is that the U.S. imports 90% of its merchandise from other developing nations, including China, which has led its price in the dollar, or from Japan, where domestic prices are falling. Over the past year, U.S. import prices from non-dominant countries are down 0.7%, while prices of Japanese imports are off by 1.3%.

Then, the price of foreign-made goods are still about where they were 12 years ago. That means that in real terms, after adjusting for overall U.S. inflation, imports are now more than 20% cheaper than they were in 1990.

Business Outlook

IMPORTS RISE THE TRADE BALANCE
Imports minus exports, \$B
1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002

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Over 100 Years of Building Global Productivity

Automotive

- Detroit's share of U.S. market has fallen from 84% to 62% in 25 years
- Some of that is foreign made, so...
- Over 50% of the content of cars sold in U.S. is imported

Editorials

A Turning Point For the Economy

SUDDENLY, THINGS ARE looking up. Corporate profits are surging, the stock market is levitating, confidence is returning—and even tax revenues are beginning to rise. With the economy going gangbusters, the unprecedented past two years of massive job losses in the face of rising economic growth is probably at an end. But a quick rebound in jobs should not be taken for granted, especially by those in the 2004 Presidential campaign. This time around, the U.S. is having not just cyclical joblessness but permanent job destruction (page 46).

People thrown out of work are taking substantially longer to find new work. Most of their old jobs are gone forever, and they will need to jump to different industries, perhaps entirely uncharted ones, to replace them. As demand picks up and companies lose their strong reluctance to hire, the economy will eventually generate many jobs. But millions who suffer from job destruction will require extra training and schooling to retrain them into new careers.

The biggest job losses, of course, have been in manufacturing. Employment in factories peaked at 16 million in 1979. In every business cycle since then—except the current one—sharp declines in jobs during recessions were filled (and by stability during expansions. Manufacturing fell gradually, until the decline went into free fall with the recession of 2001. Even

in the third quarter, with growth in gross domestic product rising at 6% to 7%, factory jobs disappeared.

What's different this time versus all sharply rising productivity and "offshoring" of factories to China. Past business cycles saw productivity fall as the recovery picked and companies hired more people. This time, productivity growth actually accelerated, allowing corporations to accomplish more with fewer people, and lowering profits. Companies want production offshore even as growth returns. With its network of suppliers, reliable energy, and able workers, China makes it easy for manufacturers to move.

America is clearly moving into unknown economic territory. The tradeoff between productivity and job growth that has characterized this business cycle may well end in the best of strong economic growth. In the months ahead, we could see a replay of the '80s and '90s when high productivity was marred by rapid job creation to spread prosperity throughout society. Stated growth of 4% or more could generate enough demand for it that it does in all able-bodied workers, including those laid from dying industries. That's what happened in the '90s.

But there is a chance that job destruction overwhelms job creation. Rising productivity combined with outsourcing can spread from manufacturing to services, its palting jobs. Goldman Sachs predicts that up to six million service jobs could move offshore over the next decade.

It would be prudent for policymakers to start thinking about helping people find the education and training to start new careers. The tide is clearly rising. We should make sure that everyone gets into the boat.



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How much longer will the U.S. manufacture?





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Since the mid 20th Century... entering the global economy has meant

- Moving the products of human effort from an economy where labor is under-valued to an economy where labor is over-valued
- Enabled by reduction in the time and cost of transport
- Dramatic and permanent drop in electronic connection costs



In the 20th Century, for the first time...

- As much as 20% of the world lives in relative prosperity
- In the latter half, some entire nations were self-sufficient and mostly prosperous
- Great differences in economic conditions could be found by crossing a border



In the 20th Century

- Post-war Europe and Japan rebuilt through manufacturing
- Distribution of global wealth still distorted; 1/5 of world population consumes 4/5 of resources



China

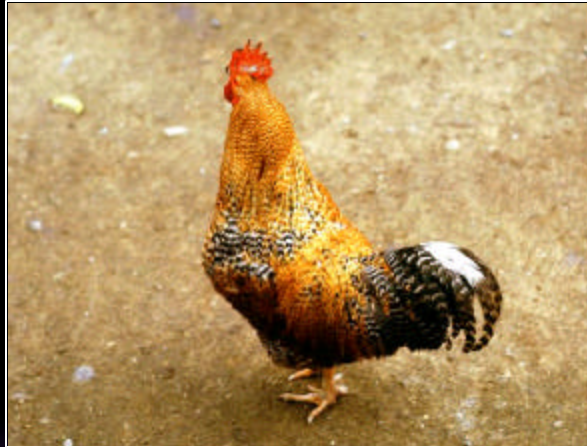
- For most of the 20th Century, withdrew from the world economic and cultural arena
- Re-entry caused enormous economic disruption in early 21st Century
- From rudimentary self-sufficiency their production became world-class



- | | | | |
|----------------|-------------|----------------|-------------|
| • China | 1,200 | • U.S. | 250 |
| • India | 800 | • EC | 300 |
| • Brazil | 200 | • Japan | 100 |
| • Indonesia | 200 | • Canada, etc. | <u>50</u> |
| • Former USSR+ | | | 700 MILLION |
| Eastern Europe | <u>400</u> | | |
| | 2.8 BILLION | | |



U.S. virtually self-sufficient in food production



Manufactured products are neither perishable nor easily damaged



Through the 20th Century, freight costs continually fell due to improved “logistics”

- Automotive parts and consumer goods could be transported and distributed globally for no more than 5% to 10% of the cost of making the product



Thousands of Brazilian autoworkers strike for higher wages

Byline: Steve Kopp

About 34,000 Brazilian workers for Volkswagen, Scania, Ford Motor and DaimlerChrysler went on strike Wednesday demanding a bigger wage increase than the automakers are offering, a union official said.

The walkout halted production at plants in São Bernardo do Campo, a city outside São Paulo that accounts for one-third of total auto output in Brazil. The metalworkers' union will decide Thursday whether the strike will continue, said Marlene Menist, a spokeswoman for the metalworkers union in São Bernardo do Campo.

"There are no more rounds of negotiations scheduled for now, and I'm not

sure there will be any," said José Lopes Felício, the president of the metalworkers union.

A drawn-out work stoppage may hinder efforts by President Luiz Inácio Lula da Silva of Brazil, a former metalworkers union leader who pledged to create jobs and boost wages ahead of last year's presidential election, to spark a recovery in South America's biggest economy. The car industry accounts for about 9 percent of Brazil's industrial output after automakers invested \$16.7 billion in the past decade in the country to expand capacity.

"The strike may delay a recovery in the industry," said Vinícius Carneiro, chief economist at Vale, an economist at Ernst & Young in São Paulo, "but

it won't affect them in the very short run because they still have a high level of inventories."

Automakers and dealers currently have 150,000 units in their inventories, representing 30 days of sales. The industry on average works with inventories representing 21 days of sales, according to the Brazilian auto association Adesiva.

The automakers have refused the companies' offer to increase wages by 12.7 percent this year. The unions are asking for a 20 percent wage increase. Workers have also rejected the companies' proposal to cut wages by 10 percent to 20 percent, or 10 percent to 15 percent, on wages above 4,000 reais a month.

The strike highlights problems in

Brazil's auto industry, which is struggling with overcapacity and falling sales. Carmakers in Brazil have shed 1,400 jobs since 2004, or about 4 percent of the work force, and have sustained a 9 percent drop in sales in the first nine months of the year.

Volkswagen, Europe's largest carmaker, said Wednesday that third-quarter profit fell 5 percent in part because of a change to eliminate jobs in Brazil, where the economy shrank 1.4 percent in the second quarter from the same period last year, the biggest contraction since 1991.

Workers at Volkswagen's plant in Curitiba, located in the interior of São Paulo state, said they also have sent VW a letter saying that they may go on strike

on Thursday if the company does not improve the terms of a plan to fire 2,000 workers.

A VW spokeswoman in São Bernardo do Campo declined to comment, saying Andressa is negotiating with union leaders. Paulo Verrini, a spokesman for Andressa, declined to comment.

Vale, the economist, said, "The situation is very unfavorable for workers because of the high level of unemployment."

Brazil's unemployment rate held at a two-year high in September. The country's jobless rate was 12.7 percent in Brazil's six largest metropolitan areas, down from 17 percent in August, the national statistics agency said.

(Bloomberg, Reuters)

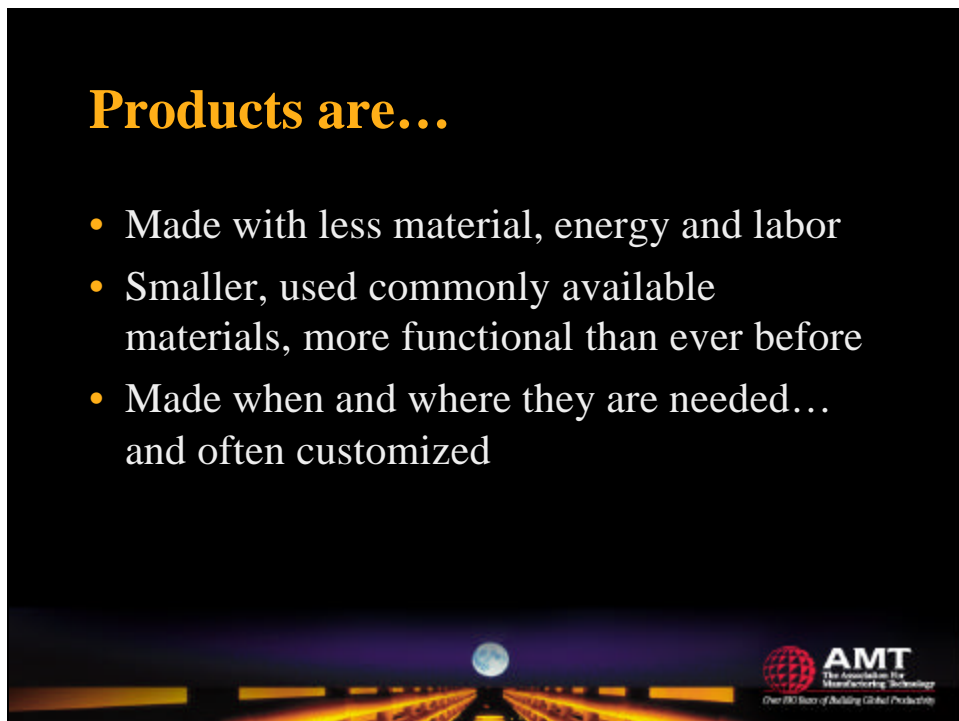


**World economic growth creates
more affluent consumers
purchasing more material things**



Products are...

- Made with less material, energy and labor
- Smaller, used commonly available materials, more functional than ever before
- Made when and where they are needed... and often customized

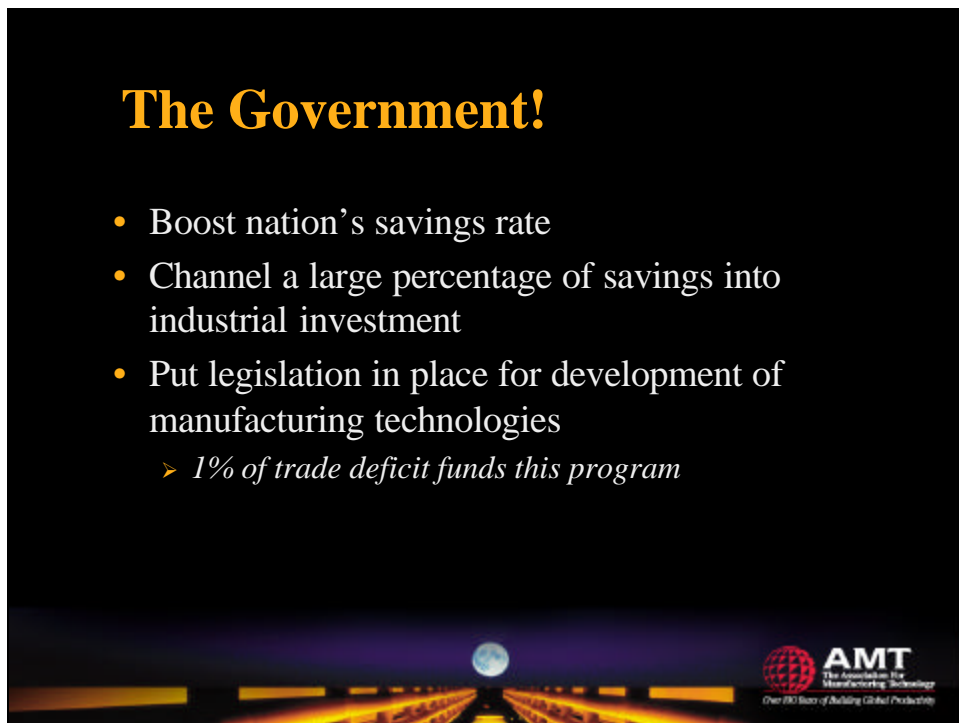


Here's what the Government should do...



The Government!

- Boost nation's savings rate
- Channel a large percentage of savings into industrial investment
- Put legislation in place for development of manufacturing technologies
 - *1% of trade deficit funds this program*



The Government!

- Focus on manufacturing technology development through NIST/ATP
- Ensure a reasonable return on manufacturers' investments
- Enhance education programs
- Nurture manufacturing technology developers



The Government!

- Tariffs to offset tougher U.S. regulations



The Government!

- Make investments in manufacturing technology infrastructure



The Government!

- Recognize that large U.S. manufacturers are global companies that happen to be headquartered in the U.S.



The Government!

- A Cabinet level Department of Industrial Production was established



**Here's what the U.S.
Manufacturing Technology
Industry needs to do...**

(regardless of what our government does)



The Industry!

- Recognize that U.S. competitive advantage comes from manufacturing process expertise



The Industry!

- New business model of “transaction fees and reduced risk” for customers to insure the profitable use of technology



The Industry!

- Use intellectual property to protect innovative manufacturing methods



The Industry!

- Bring more science and technology into manufacturing



The Industry!

- 2103 global manufacturing technology market will be 20 times 2003 in real terms



The Industry!

- Not selling capital equipment outright, but providing the manufacturing process surrounding it, can provide major new revenue streams



The Industry!

- New willingness of customers
“to change in order to compete”
- Proven technology and
recognized brand names

